

CASE STUDY

Rotoshear®
Potato processor



Updating wastewater treatment reduces energy costs

Challenge

Increased production at one of our customer's facilities was severely taxing their wastewater treatment process. From 80,000 to 100,000 pounds of potato waste was discharged into the waste stream daily, at a flow rate of 2,000 GPM. The load, which equaled about 83 ft³ of screenings per hour, was too heavy for the existing Rotoshear® screen to handle. Consequently, the valuable potato byproduct not only escaped, but overloaded downstream equipment as well.

Solution

Rather than simply quickfix the problem with a larger screen, the processor decided to use this opportunity to improve the efficiency of the waste treatment process. Their objectives included: 1) improve byproduct recovery, 2) minimize waste, and 3) lessen the load on the downstream equipment, especially the clarifier and centrifuge, which was maintenance-intensive and consumed substantial energy.

First, to increase by-product recovery, they changed the cylinder screen on their existing Rotoshear® unit to one with smaller, .030" openings. The smaller openings restricted the flow; consequently, a second Rotoshear® screen was installed to work with the original screen. It, too, had .030" openings to maximize by-product recovery.

Previously, the screenings were dewatered with a hydraulic ram press. To improve dewatering, the hydraulic press was replaced by a Helixpress®, Model SPR320. The Helixpress unit is a spiral press, designed to maximize dewatering of starchy solids. Furthermore, by adding a short section of shaft to the dewatering zone, the processor was able to reduce the screenings to 22-24% dry weight.

Results

The addition of the Helixpress® shaftless spiral dewatering press and the Rotoshear® internally-fed rotating drum screen upgrades provided many benefits. First, the volume of screenings dewatered by the Helixpress® unit was reduced so fewer hauls were required. In addition, the drier screenings were more digestible and more valuable as animal feed.

Second, the screened filtrate contained fewer particles so the clarifier stayed cleaner. As a result, the centrifuge, which had been operating continuously powered by 60 HP, now only ran an hour a day. This alone reduced the plant's energy consumption by more than \$12,000 a year. In addition, centrifuges can be extremely maintenance intensive, but now since it was only operating intermittently, maintenance was reduced as well. ■



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